

## CLAIMS

1 1. A computer program product residing on a computer  
2 readable medium comprises instructions for causing a computer to:  
3 produce a prediction of availability of a seat for a  
4 mode of transportation in accordance with an availability query.

1 2. The computer program product of claim 1 wherein  
2 instructions that cause the computer to provide a prediction of  
3 availability comprise instructions to cause the computer to:  
4 access a database of stored query results to produce a  
5 prediction in response to the query.

1 3. The computer program product of claim 1 wherein  
2 instructions that cause the computer to access the database  
3 further comprise instructions that cause a computer to:  
4 receive the availability query and determine whether  
5 the availability query corresponds to or is similar to a query  
6 stored in the database; and  
7 retrieve a stored answer associated with a query stored  
8 in the database, that corresponds to or is similar to  
9 availability query or otherwise send an actual availability query  
10 to the airline reservation system.

1 4. The computer program product of claim 3 wherein  
2 instructions that cause the computer to access the database  
3 further comprise instructions for causing the computer to:  
4 determine whether the retrieved, stored answer is stale  
5 and, if the retrieved stored answer is stale,  
6 send an actual availability query to an availability  
7 system; and  
8 if the retrieved, stored answer is not stale, return  
9 the retrieved, stored answer as the prediction.

10 5. The computer program product of claim 4 wherein  
11 instructions that cause the computer to access the database  
12 further comprise instructions for causing a computer to:  
13 use a model-based predictor to provide a prediction of  
14 the answer to the query if there is no availability query found  
15 in the database.

1 6. The computer program product of claim 1 wherein the  
2 predictor comprises instructions for causing the computer to:  
3 parse the availability query to produce a set of  
4 features for use by an availability model.

1 7. The computer program product of claim 1 wherein the  
2 instructions that cause the computer to produce a prediction  
3 comprise instructions for causing the computer to:  
4 determine features of the availability query; and  
5 apply determined features of the query to an  
6 availability model.

1 8. The computer program product of claim 7 wherein the  
2 availability model is a statistical or deterministic classifier  
3 that is trained using historical availability queries.

1 9. The computer program product of claim 8 wherein the  
2 statistical or deterministic classifier is a linear or quadratic  
3 discriminator, factorial model, decision tree, decision list,  
4 neural network, sigmoidal network, Bayesian network, naive  
5 Bayesian network, Markov random field, maximum entropy model,  
6 exponential or log linear model, nearest neighbor model, radial  
7 basis model or support vector model.

8 10. The computer program product of claim 1 wherein  
9 instructions that cause the computer to provide a predicted  
10 answer of availability comprise instructions that cause a  
11 computer to simulate an airline's availability system.

1 11. The computer program product of claim 1 wherein  
2 instructions that cause the computer to provide a prediction of  
3 availability comprise instructions to cause the computer to:  
4 access a database that has probability estimates stored  
5 as a function of booking codes.

1 12. The computer program product of claim 11 wherein the  
2 database that has probability estimates stored as a function of  
3 booking codes further has probability estimates stored as a  
4 function of booking codes, time before departure and airline.

1 13. The computer program product of claim 1 wherein  
2 instructions that cause the computer to provide a prediction of  
3 availability comprise instructions that cause a computer to:  
4 access a database that has true/false indications  
5 stored as a function of booking codes.

1 14. The computer program product of claim 13 wherein the  
2 true/false indications are further stored as functions of booking  
3 codes, time before departure, and airline.

1 15. The computer program product of claim 1 wherein the  
2 prediction includes a number of seats that are available.

3 16. The computer program product of claim 1 wherein the  
4 prediction includes a number of seats that are available on a  
5 booking code basis.

6 17. The computer program product of claim 1 wherein the  
7 prediction includes a confidence factor indicating how likely it  
8 is that the prediction is correct.

1 18. A method for providing availability information for a  
2 seat on an airline, comprises:  
3 producing a prediction of availability of the seat in  
4 accordance with an availability query.

1 19. The method of claim 18 wherein producing further  
2 comprises:  
3 accessing a database of stored query results to produce  
4 the prediction.

1 20. The method of claim 19 further comprising:  
2 receiving the availability query and determine whether  
3 the availability query corresponds to or is similar to a query  
4 stored in the database; and  
5 retrieving a stored answer associated with a query  
6 stored in the database that corresponds to or is similar to  
7 availability query or otherwise send an actual availability query  
8 to the airline reservation system.

1 21. The method of claim 19 further comprising:  
2 determining whether the retrieved, stored answer is  
3 stale and, if the retrieved stored answer is stale,  
4 sending an actual availability query to the airline,  
5 and  
6 if the retrieved, stored answer is not stale,  
7 returning the retrieved, stored answer as the  
8 prediction.

1 22. The method of claim 18 wherein providing a predicted  
2 availability answer further comprises:  
3 sending the query to a model-based predictor to provide  
4 a prediction of the answer to the query.

1 23. The method of claim 22 further comprising:  
2 parsing the availability query to produce a set of  
3 features for use by an availability model; and  
4 applying selected ones of the determined features of  
5 the query to the availability model.

1 24. The method of claim 1 wherein the availability model is  
2 a statistical or deterministic classifier.

1 25. The method of claim 1 wherein providing a predicted  
2 availability answer comprises:  
3 simulating an airline's availability system.

1 26. The method of claim 1 wherein providing a prediction of  
2 availability comprises:  
3 accessing a database that has probability estimates  
4 stored as a function of booking codes.

1 27. A system for producing an availability answer in  
2 response to a query for airline seat availability information,  
3 comprises:  
4 a predictor that is responsive to the query and  
5 produces an answer that corresponds to a prediction of airline  
6 seat availability.